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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/676,696	09/29/2000	David L. Rechberger	39808/SAH/C715	1549

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EXAMINER

LAVARIAS, ARNEL C

ART UNIT	PAPER NUMBER
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2872

DATE MAILED: 03/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/676,696

Applicant(s)

RECHBERGER ET AL.

Examiner

Arnel C. Lavarias

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 January 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-37, 39-41 and 44-60 is/are pending in the application.
- 4a) Of the above claim(s) 2-37, 39-41 and 44-59 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 60 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The amendments to Claim 60 in the submission dated 1/5/04 are acknowledged and accepted. In view of these amendments, the rejection of Claim 60 under 35 U.S.C. 112, 2nd paragraph, in Section 7 of the Office Action dated 10/3/03 is respectfully withdrawn.

Response to Arguments

2. The Applicants' arguments filed in the submission dated 1/5/04 (See in particular Pages 6-7 of the Applicants' remarks dated 1/5/04) have been fully considered but they are not persuasive. Applicants argue that the combined teachings of DeAndrea et al. and Leas ignore the complex nature of transmitting light through coupling media and that no motivation exists to combine these teachings. The Examiner respectfully disagrees. The Examiner notes that the potting material utilized in Leas is not the 'typical' potting material used only for protection. In fact, the potting material of Leas is an optically transparent material (e.g. TiO₂, Ta₂O₅, Si₃N₅, ZnS, SiC) intended to transmit light (One skilled in the art will understand that the choice of material is generally driven by the wavelength range of light to be transmitted through the material.). Further, Leas discloses this optically transparent material to have a high refractive index such that total internal reflection may occur at the boundary between the material and a lower refractive index material. Thus, Leas has accounted for light guidance within the optically transparent material by use of Snell's law (See in particular col. 4, line 43-col. 5, line 47).

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Additionally, Applicants argue that by filling in the spaces in the device of DeAndrea et al. with an optically transparent potting material, the waveguiding characteristics of the light that would propagate within the device will change, particularly where the light is emitted from the source and coupled into the optically transparent material. Examiner acknowledges this. However, the teachings of Leas also consider this, particularly in the discussion of choice of refractive index for the potting material (See col. 4, line 43-col. 5, line 47), as well as the discussion of the use of antireflection coatings and multilayer thin films at the interface between the light source or optical fiber and the optically transparent potting material (See col. 3, line 57-col. 4, line 36; col. 6, lines 43-68; col. 7, lines 35-48). Finally, the Applicants argue that it would not be possible to integrally mold the barrel portion of the instant invention from the material of Leas, i.e. chemical-vapor-deposited TiO₂. The Examiner notes that the specific structure or materials of Leas is not necessarily being bodily incorporated into the structure of DeAndrea et al. Also, the claimed invention does not have to expressly be suggested in any one or all of the references. Rather, the test is what the combined teachings of DeAndrea et al. and Leas would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

3. Claim 60 is rejected as follows.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 60 is rejected under 35 U.S.C. 103(a) as being unpatentable over DeAndrea et al. (U.S. Patent No. 5515468), of record, in view of Leas (U.S. Patent No. 4901329), of record, and King (U.S. Patent No. 4114177).

DeAndrea et al. discloses an optical device package (See Figures 12, 13, 14) comprising a substrate (See for example bottom surface of 30 attached to 17 in Figure 14) having a mounting surface (See for example 17 in Figure 14); an optoelectronic device (See for example 10 in Figure 14) having a lower mounting surface operably coupled to the mounting surface of the substrate wherein the optoelectronic device is in electrical communication with the substrate (See for example connection wire from 30 to 16 in Figure 14); the optoelectronic device further having an active upper surface disposed substantially parallel to the mounting surface of the substrate (See for example 17 and 30 in Figure 14) and being configured to emit or receive light normal to the active upper surface (See for example 30 in Figure 14); a fiber coupling assembly having a body portion that encapsulates the optoelectronic device (See 40/70 in Figure 14); the fiber coupling assembly further having a barrel portion extending from the body portion in a direction substantially parallel to the substrate, the barrel portion being configured to operably engage a fiber optic cable (See Figures 11 and 14; col. 3, lines 49-59; col. 10, lines 35-44); and the fiber coupling assembly further having a planar mirror within the body portion of the fiber coupling assembly to reflect light traveling within the body portion (See for example 310 in Figure 14). DeAndrea et al. lacks the fiber coupling

assembly being optically transparent, the body portion of the fiber coupling assembly being configured and arranged to transmit light and being integrally molded with the optoelectronic device such that the optoelectronic device and planar mirror are embedded within the fiber coupling assembly; and an enclosure coupled to the substrate that houses the optoelectronic device. However, Leas teaches an integrated laser array device (See for example Figures 1, 4, and 6), wherein a transparent encapsulating medium (See 32 in Figure 6; col. 3, line 57-col. 4, line 49) is used to surround all the components (i.e. for example the laser 20 and planar routing mirrors 28' and 28'' in Figure 6) while allowing the light emitted from the laser to be transmitted within the transparent encapsulating medium. The combined teachings of DeAndrea et al. and Leas lack an enclosure coupled to the substrate that houses the optoelectronic device. However, the use of an enclosure to house optoelectronic devices is well known in the art. For example, King teaches an optical coupled device (See for example Figures 2-3) including optoelectronic devices (See 12, 16 in Figure 2 for example) embedded in an optically transparent material (See for example 20 in Figure 2), wherein an additional housing is disposed around the optically transparent material to house the optoelectronic devices (See for example 26 in Figure 2). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the fiber coupling assembly be optically transparent, the body portion of the fiber coupling assembly being configured and arranged to transmit light and being integrally molded with the optoelectronic device such that the optoelectronic device and planar mirror are embedded within the fiber coupling assembly; and an enclosure be coupled to the substrate that houses the

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optoelectronic device, as taught by Leas and King, in the optical device package of DeAndrea et al. One would have been motivated to have the fiber coupling assembly be optically transparent, the body portion of the fiber coupling assembly being configured and arranged to transmit light and being integrally molded with the optoelectronic device such that the optoelectronic device and planar mirror are embedded within the fiber coupling assembly, for the purpose of reducing scattering and Fresnel losses within the device, while confining light guidance to particular regions within the device via total internal reflection, as well as provide protection for the components embedded within the encapsulating material from damage. One would have been motivated to have an enclosure be coupled to the substrate that houses the optoelectronic device to provide additional protection for the optoelectronic devices housed within the enclosure, as well as prevent stray light from entering the enclosure.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

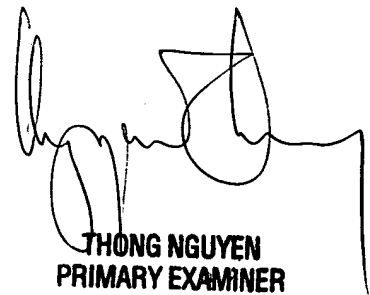
7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arnel C. Lavarias whose telephone number is 571-272-2315. The examiner can normally be reached on M-F 8:30 AM - 5 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Arnel C. Lavarias
3/9/04



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